

**FACT SHEET FOR NPDES PERMIT
NO. WA-002055-9**

CITY OF PATEROS

SUMMARY

The City of Pateros' Publicly-Owned Treatment Works (POTW) was originally constructed and placed into operation in 1967. The construction was necessitated by the increased pool elevation (Lake Pateros) caused by the construction of the Wells Dam hydroelectric project. The facility was extensively upgraded in 1985 and has undergone an additional upgrade which essentially abandoned the majority of the older plant. The facility produces high quality effluent.

The upgraded plant went online in March of 2001. The upgrades included:

1. Grit removal at the headworks
2. New activated sludge aeration basin/clarifiers
3. New sludge dewatering facilities
4. Various new buildings to house the new equipment
5. A mechanically-cleaned fine barscreen
6. New UV disinfection facilities
7. A new fence around the site

On March 27, 2002, the City was issued a Notice of Violation (DE02WQCR-3819) which indicated that the POTW had submitted DMR's from its laboratory, which had lost accreditation for failure to submit Performance Evaluation sample results. The City expects to be accredited in the near future. Until that time, a certified laboratory is conducting the required analyses.

The previous authorized permit determined there was no reasonable potential for ammonia to exceed the State's surface water quality standards. The proposed permit requires the Town to monitor for ammonia, alkalinity and hardness. If data indicates there exists a reasonable potential for ammonia to exceed surface water quality standards, then ammonia limitations will be adopted via permit modification.

The limitations of the proposed permit will remain unchanged from the previous permit's final limitations with the exception of residual chlorine, which is eliminated due to the installation of the UV disinfection system.

Mixing zone dilution factors and plume width has been changed using the Department approved EPA Visual Plumes Mixing Model to better reflect existing conditions.

TABLE OF CONTENTS

	<u>Page</u>
SUMMARY	1
GENERAL INFORMATION	5
BACKGROUND INFORMATION	5
DESCRIPTION OF THE FACILITY	5
History	5
Collection System Status	5
Treatment Processes	6
Discharge Outfall	6
Residual Solids	7
PERMIT STATUS	7
SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT.....	7
WASTEWATER CHARACTERIZATION	8
Influent	8
Effluent	8
PROPOSED PERMIT LIMITATIONS	9
Design Criteria	10
TECHNOLOGY-BASED EFFLUENT LIMITATIONS	11
SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS	12
"Numerical" Criteria for the Protection of Aquatic Life	12
"Numerical" Criteria for the Protection of Human Health	12
"Narrative" Criteria	12
Antidegradation	12
"Critical" Condition	13
Description of the Receiving Water.....	13
Surface Water Quality Criteria	14
Consideration of Surface Water Quality-Based Limits for "Numerical" Criteria	14
Whole Effluent Toxicity	14
Human Health	15
Sediment Quality	15

GROUND WATER QUALITY LIMITATIONS	15
MONITORING REQUIREMENTS	16
LAB ACCREDITATION	16
OTHER PERMIT CONDITIONS	17
REPORTING AND RECORDKEEPING	17
PREVENTION OF FACILITY OVERLOADING	17
OPERATION AND MAINTENANCE (O&M)	17
RESIDUAL SOLIDS HANDLING	17
PRETREATMENT	17
GENERAL CONDITIONS	18
PERMIT ISSUANCE PROCEDURES	18
PERMIT MODIFICATIONS	18
RECOMMENDATION FOR PERMIT ISSUANCE	18
REFERENCES FOR TEXT AND APPENDICES	18
APPENDIX A -- PUBLIC INVOLVEMENT INFORMATION	20
APPENDIX B -- GLOSSARY	21
APPENDIX C -- TECHNICAL CALCULATIONS	27
APPENDIX D -- RESPONSE TO COMMENTS	32

INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System of permits (NPDES permits), which is administered by the Environmental Protection Agency (EPA). The EPA has delegated responsibility to administer the NPDES permit program to the State of Washington (State) on the basis of Chapter 90.48 RCW which defines the Department of Ecology's (Department's) authority and obligations in administering the wastewater discharge permit program.

The regulations adopted by the State include procedures for issuing permits (Chapter 173-220 WAC), technical criteria for discharges from municipal wastewater treatment facilities (Chapter 173-221 WAC), water quality criteria for surface and ground waters (Chapters 173-201A and 200 WAC), and sediment management standards (Chapter 173-204 WAC). These regulations require that a permit be issued before allowing the discharge of wastewater to waters of the State. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the proposed permit.

One of the requirements (WAC 173-220-060) for issuing a permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least thirty days before the proposed permit is issued (WAC 173-220-050). The fact sheet and draft permit are available for review (see Appendix A - Public Involvement of the fact sheet for more detail on the Public Notice procedures).

This fact sheet and draft permit have been reviewed by the applicant. Errors and omissions identified in the review have been corrected before going to public notice. After the public comment period closes, the Department will summarize all of the substantive comments and their respective responses. The summary and response to comments will become part of the file on the proposed permit. A copy of the summary and response to comments will be sent to each of those parties submitting comments. This fact sheet will not be revised. However, comments and the resultant changes to the proposed permit will be summarized in Appendix D -- Response to Comments.

GENERAL INFORMATION	
Applicant:	City of Pateros
Facility Name and Address:	City of Pateros Wastewater Treatment Facility 113 Lakeshore Drive Pateros, Washington 98846
Type of Treatment:	Class 2, Aeromod Activated Sludge Facility
Discharge Location:	Columbia River, River Mile: 524.1 Latitude: 48° 03' 21" N Longitude: 119° 53' 38" W
Water Body ID Number:	WA-49-1040

BACKGROUND INFORMATION

DESCRIPTION OF THE FACILITY

History

The City of Pateros' Publicly-Owned Treatment Works (POTW) was originally constructed and placed into operation in 1967. The construction was necessitated by the increased pool elevation (Lake Pateros) caused by the construction of the Wells Dam hydroelectric project. The facility was extensively upgraded in 1985 and has since undergone a complete and thorough upgrade which essentially abandoned the majority of the older plant. The upgraded facility went online in March of 2001.

Collection System Status

The City's collection system was originally installed in 1954 and expanded in 1966 and now contains approximately 8.8 miles of piping. Following the recent upgrade, the most recent I & I Report received at the Department in May of 2003 reports the average gallons/persons/day at 80 gallons. This is well below the EPA average of 120 gallons/persons/day. This indicates that I & I at this time is insignificant. I & I in 2001 represented 40% of the design flow. Following the upgrade, I & I now represents 13% of the design flow.

Treatment Processes

Formerly the POTW was an oxidation ditch activated sludge facility. An evaluation of the POTW treatment processes (February 1998 Wastewater Facilities Plan by Varela & Associates, Inc.) indicated that:

1. There was inadequate screening or comminuting occurring at the headworks;
2. There was inadequate aeration capacity at the oxidation ditch;
3. There was inadequate clarifier capacity and a poor design;
4. There was inadequate sludge drying capacity during winter months;
5. There was inadequate chlorination facilities to meet the Department's required contact times; and
6. The influent BOD loadings consistently exceeded the design capacity of the POTW.

With regard to the chlorination facilities the report noted that:

1. The chlorination detention time at design flow was less than ½ hour, while it should be at least one whole hour;
2. At peak design, the detention time was only 6 minutes; and
3. There were numerous worker safety hazards in and around the chlorination facilities.

As a result of these inadequacies of the POTW, the City decided to construct essentially a whole new plant at the same site of the existing facility. The upgraded plant went online in March of 2001. The upgrades included:

1. Grit removal at the headworks;
2. A mechanically-cleaned fine barscreen;
3. New activated sludge aeration basin/clarifiers;
4. New UV disinfection facilities;
5. New sludge dewatering facilities;
6. A new fence around the site; and
7. Various new buildings to house the new equipment.

With completion of the POTW upgrades, the principal treatment plant operator must be certified by the State as, at least, a Class II operator.

Discharge Outfall

Secondary treated and disinfected effluent is discharged from the facility via an outfall line which extends approximately 550 feet offshore and terminates as an open-ended pipe. The outfall lies approximately 50-59 ft. below the surface of the Columbia River at River Mile 524.1.

Residual Solids

The treatment facilities remove solids during the treatment of the wastewater at the headworks (grit) and in the oxidation ditch (scum), in addition to incidental solids (rags and other debris) removed as part of the routine maintenance of the equipment. Grit, rags, scum and screenings are drained and disposed of as solid waste at the local landfill.

The POTW utilizes its preexisting drying beds in conjunction with Deskins Biosolids polymeric "Seaquak" system with sand filtration.

PERMIT STATUS

The previous permit for this facility was issued on May 4, 1999 and will expire on June 30, 2004. The previous permit placed numerical effluent limitations on 5-day Biochemical Oxygen Demand (BOD₅), Total Suspended Solids (TSS), pH, Fecal Coliform Bacteria and Total Residual Chlorine. The Total Residual Chlorine limitation was rendered moot following installation of the new U.V. disinfection system.

An application for permit renewal was received by the Department on September 11, 2003 and was accepted on October 21, 2003.

SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

The facility received its last inspection on February 4, 2004 which found the overall POTW in a clean condition with very good effluent.

On March 27, 2002, the City was issued a Notice of Violation (DE02WQCR-3819) that indicated the POTW had submitted DMR's from its laboratory, even though the laboratory had lost accreditation for failure to submit Performance Evaluation sample results. Each DMR that was submitted with the non-accredited laboratory results constituted a violation. In a letter from the Pateros City Superintendent, the City stipulated that henceforth all analysis will be performed at an accredited laboratory until the POTW laboratory is accredited by the State.

The City has failed to report results of quarterly effluent monitoring for ammonia, hardness and alkalinity as required in the previous permit. This constitutes a violation of the previous permit. The proposed permit will require the City to monitor and report the above parameters on a monthly basis for one year at the end of which the City may request a reduction in monitoring subject to Departmental approval.

On November 3-4, 2003 an incident involving a discharge of solids to the river was reported to have occurred. It involved a large influx of influent forcing a loss of solids over the clarifier weir. It was estimated that an extra 80,000 gallons passed through the plant which normally processes 50,000 gpd. The subsequent investigation was inconclusive. Sampling of TSS and

BOD for the days in question showed no violation. The extra flow however was attributed to one SIU. Smoke and dye testing has not been able to pinpoint the cause. The City plans to continue its investigation of the collection system to avoid future unauthorized discharges.

WASTEWATER CHARACTERIZATION

Influent

The concentration of pollutants in the influent was reported in Discharge Monitoring Reports (DMRs) submitted to the Department as a requirement of the previous permit. During the period from December 2001 through December 2003, the influent is characterized and compared to facility's design criteria as follows:

Influent Characterization and Comparison to the POTW Design Criteria					
Parameter	Units	2001-2003 Average Monthly		Maximum Monthly Average	
		Value	% Design Criteria	Value	% Design Criteria
BOD ₅	mg/L	250.96	N/A	410	N/A
BOD ₅	lb./day	94.96	40.8	154	66.1
Flow	mgd	0.0452	46	0.10	102 *
pH	Standard Units	6.9(min) 9.3(max)	N/A	9.3	N/A
TSS	mg/L	263.16	N/A	476	N/A
TSS	lb./day	99.48	42.7	210	72.9

* Occurred during the overflow incident in November 2003.

Effluent

The concentration of pollutants in the effluent was reported in Discharge Monitoring Reports (DMRs) submitted to the Department as a requirement of the previous permit. During the 24-month period from December 2001 through December 2003, the effluent is characterized and compared to design criteria as follows:

**Effluent Characterization and Comparison to the Previous Permit's
Effluent Limitations**

Parameter	Units	Two Year Monthly Average			Maximum Daily in Two Years		
		Value	% Permit Limit	Permit Limit	Value	% Permit Limit	Permit Limit
BOD ₅	mg/L	4.4	14.7	30	8.3 (max.)	27.7	30
BOD ₅	lb./day	1.7	6.9	24.6	3.3 (max.)	13.4	24.6
BOD ₅ , Removal	%	97.7	N/A		95.0 (min.)	N/A	
Fecal Coliform	# colonies/100 ml	1.9	1	200	8.0 (max.)	4	200
Ph	Standard Units	7.3 (min)	N/A		8.8 (max.)	N/A	
		7.9 (max)					
TSS	mg/L	10.1	33.7	30	22.0 (max.)	73.3	30
TSS	lb./day	3.9	8.6	24.6	7.0 (max.)	28.5	24.6
TSS, Removal	%	95.3	N/A		90.0 (min.)	N/A	
Summer Temperature	Degree C	21.2	N/A		24 (max)	N/A	

The effluent has generally been of very good quality and well within the previous permit's limitations.

PROPOSED PERMIT LIMITATIONS

Federal and State regulations require that effluent limitations set forth in a NPDES permit must be either technology- or water quality-based. Technology-based limitations for municipal discharges are set by regulation (40 CFR 133, and Chapters 173-220 and 173-221 WAC). Water quality-based limitations are based upon compliance with the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC), Sediment Quality Standards (Chapter 173-204 WAC) or the National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992.) The most stringent of these types of limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

The limits in the proposed permit are based in part on information received in the application. The effluent constituents in the application were evaluated on a technology- and water quality-basis. The limits necessary to meet the rules and regulations of the State were determined and

included in the proposed permit. The Department does not develop effluent limits for all pollutants that may be present in the effluent as reported in the application. Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation. If significant changes occur in any constituent, as described in 40 CFR 122.42(a), the Permittee will be required to notify the Department.

Influent BOD and TSS loading since the upgrade in the past two years are relatively stable with coefficients of variation, COV, at 29% and 34% respectively. The averages at 94.9 lbs/Day BOD and 99.5 lbs/Day TSS are well below the design criteria, therefore the monitoring frequency will be reduced to 1/week. The dissolved oxygen concentration averages 1.9 % with a COV of 59 %. DO monitoring will be reduced to 1/week.

Effluent BOD and TSS are relatively stable for the past two years with a Coefficient of Variation, COV, at 29% and 31% respectively. The averages at 1.68 lbs/Day BOD and 3.9 lbs/Day TSS are well below the permit limitations, therefore the monitoring frequency will be reduced to 1/week. The dissolved oxygen concentration averages 2.8 % with a COV of 31 %. DO monitoring will be reduced to 1/week. Fecal coliform colony counts are consistently well below the permit limitation. Monitoring of fecal coliform will be monitored on a weekly basis.

Design Criteria

In accordance with WAC 173-220-150 (1)(g), flows or waste loadings shall not exceed Department-approved design criteria.

The design criteria, applicable after July 1, 2000, for the City's POTW, with upgrades completed, are taken from the Department-approved Draft Wastewater Facilities Plan (February 1998) prepared by Varela & Associates, Inc.

The final POTW design criteria are as follows:

Design Criteria

Parameter	Design Quantity
Monthly average flow (max. month):	0.0983 mgd
BOD ₅ influent loading:	233 lb./day
TSS influent loading:	288 lb./day

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

Municipal wastewater treatment plants are a category of discharger for which technology-based effluent limits have been promulgated by federal and State regulations. These effluent limitations are given in the Code of Federal Regulations (CFR) 40 CFR Part 133 (federal) and in Chapter 173-221 WAC (State). These regulations are performance standards that constitute “all known available and reasonable methods of prevention, treatment and control” (AKART) for municipal wastewater.

The following technology-based limitations applicable to the proposed permit include: (1) concentration limits for fecal coliform bacteria, pH, BOD₅, and TSS taken from Chapter 173-221 WAC and from past performance; and (2) mass limits for BOD₅ and TSS based on the February 1998 Wastewater Facilities Plan, WAC 173-220-130(3)(b) and 173-221-030(11)(b).

Final Technology-Based Limits

Parameter	Limit
BOD ₅ (concentration):	Average Monthly Limit is the most stringent of the following: - 30 mg/L, and - may not exceed fifteen percent (15%) of the average influent concentration; Average Weekly Limit = 45 mg/L
BOD ₅ (mass):	Monthly effluent mass loading (lb./day) was calculated as the monthly average design flow (0.0983 mgd) x 8.34 x average monthly effluent limit (30 mg/L) = mass limit of 24.6 lb./day. The weekly average effluent mass loading is calculated as 1.5 x monthly loading = 36.9 lb./day.
Fecal Coliform Bacteria:	Monthly Geometric Mean = 200 organisms/100 mL; Weekly Geometric Mean = 400 organisms/100 mL
pH:	Shall be within the range of 6.0 to 9.0 standard units.
TSS (concentration):	Average Monthly Limit is the most stringent of the following: - 30 mg/L, and - may not exceed fifteen percent (15%) of the average influent concentration; Average Weekly Limit = 45 mg/L
TSS (mass):	Monthly effluent mass loading (lb./day) was calculated as the monthly average design flow (0.0983 mgd) x 8.34 x average monthly effluent limit (30 mg/L) = mass limit of 24.6 lb./day. The weekly average effluent mass loading is calculated as 1.5 x monthly loading = 36.9 lb./day.

SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established Surface Water Quality Standards. The Washington State Surface Water Quality Standards (Chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses of the surface waters of the state. Water quality-based effluent limitations may be based on an individual waste load allocation (WLA) or on a WLA developed during a basin-wide total maximum daily loading study (TMDL).

"Numerical" Criteria for the Protection of Aquatic Life

"Numerical" water quality criteria are numerical values set forth in the State's Water Quality Standards for Surface Waters (Chapter 173-201A WAC). They specify the levels of pollutants allowed in a receiving water while remaining protective of aquatic life. "Numerical" criteria set forth in the Water Quality Standards are used along with chemical and physical data for the wastewater and receiving water to derive the proposed permit's water quality-based effluent limits. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limitations, they must be used in the proposed permit.

"Numerical" Criteria for the Protection of Human Health

The State was issued 91 "numerical" water quality criteria for the protection of human health by the EPA (1992). These criteria are designed to protect humans from cancer and other disease and are primarily applicable to fish and shellfish consumption and drinking water from surface waters.

"Narrative" Criteria

In addition to "numerical" criteria, "narrative" water quality criteria (WAC 173-201A-030) limit toxic, radioactive, or deleterious material concentrations below those which have the potential to adversely affect characteristic water uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. "Narrative" criteria protect the specific beneficial uses of all fresh (WAC 173-201A-130) and marine (WAC 173-201A-140) waters in the State.

Antidegradation

The State's Antidegradation Policy requires that discharges into a receiving water shall not further degrade the existing water quality of the water body. In cases where the natural conditions of a receiving water are of lower quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. Similarly, when the existing conditions of a receiving water are of higher quality than the criteria assigned, the existing conditions shall

constitute the water quality criteria. More information on the State's Antidegradation Policy can be obtained by referring to WAC 173-201A-070.

"Critical" Condition

Surface water quality-based limits are derived for the waterbody's "critical" condition, which represents the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or characteristic waterbody uses.

Mixing Zone

The Water Quality Standards allow the Department to authorize mixing zones around a point of discharge in establishing surface water quality-based effluent limits. Both acute and chronic mixing zones may be authorized for pollutants that can have a toxic effect on the aquatic environment near the point of discharge. The concentration of pollutants at the boundary of these mixing zones may not exceed the "numerical" criteria for that type of zone. Mixing zones can only be authorized for discharges that are receiving AKART and in accordance with other mixing

zone requirements of WAC 173-201A-100. The National Toxics Rule (EPA, 1992) allows the chronic mixing zone to be used to meet human health criteria.

The mixing zones authorized for the proposed permit, were determined using the Department approved and EPA sponsored Visual Plumes 2002 dilution model for large water bodies. Unlike the previous determination, which calculated average dilution via geometric configurations; the Visual Plumes model is more robust in defining fluid dynamics and complexity of environmental factors. As a result of this analysis, centerline dilution values have been predicted and a new plume width estimated. The City's POTW mixing zone is defined as follows:

The length of the chronic mixing zone shall extend downstream no greater than **359 feet** and upstream no greater than **100 feet**. The chronic mixing zone width shall be no more than **41.2 feet**. The aquatic life-based dilution factors for the chronic and acute mixing zones were determined to be **683:1** and **37.2:1**, respectively.

Description of the Receiving Water

The facility discharges to the Columbia River, River Mile 524.1, which is designated as a Class A receiving water in the vicinity of the outfall. Characteristic uses include the following:

“water supply (domestic, industrial, agricultural); stock watering; fish migration; fish rearing, spawning and harvesting; wildlife habitat; primary contact recreation; sport fishing; boating and aesthetic enjoyment; commerce and navigation”

Water quality of this class shall meet or exceed the requirements for all or substantially all uses.

Surface Water Quality Criteria

Applicable criteria are defined in Chapter 173-201A WAC for aquatic biota. In addition, U.S.EPA has promulgated human health criteria for toxic pollutants (1992). Criteria for this discharge are summarized below:

Parameter	Surface Water Criteria Value
Fecal Coliforms	100 organisms/100 ml as a maximum geometric mean
Dissolved Oxygen	8 mg/L as a minimum
Temperature	20°C as a maximum (Special Condition)
pH	Not outside the range of 6.5 to 8.5 standard units
Turbidity	Less than 5 NTUs above background
Toxics	No toxics in toxic amounts

The receiving water (Columbia River) in the vicinity of the City's outfall is on the Department's 1998 303(d) list due to exceedances of the State's surface water standards for total dissolved gas.

Consideration of Surface Water Quality-Based Limits for "Numerical" Criteria

Pollutant concentrations in the proposed discharge exceed water quality criteria with technology-based controls which the Department has determined to be AKART. Due to the large amount of dilution available at the outfall mixing zones, the Department has determined that no surface water quality standard of the State's regulation has a reasonable potential to be exceeded by the City's POTW discharge of effluent. Due to the high dilution factor, it is assumed no reasonable potential for ammonia to exceed the State's surface water quality standards exists. However, the proposed permit will require that the City begin monitoring its effluent for ammonia in order to substantiate that assumption.

Whole Effluent Toxicity

The Water Quality Standards for Surface Waters require that the effluent not cause toxic effects in the receiving waters. Many toxic pollutants cannot be detected by commonly available detection methods. However, toxicity can be measured directly by exposing living organisms to the wastewater in laboratory tests and measuring the response of the organisms. Toxicity tests measure the aggregate toxicity of the whole effluent, and therefore this approach is called whole effluent toxicity (WET) testing.

Toxicity caused by unidentified pollutants is not expected in the City's POTW effluent as there have not been previously found any significant priority pollutants. The only industrial users in Pateros are fruit packers. They use no float chemicals. SOPP, fungicide is used in a separate

tank. However, any resultant effluent is used for dust abatement and not discharged to the POTW. Therefore, no WET testing will be required in the proposed permit. The Department may require effluent WET testing in the future if it receives information that toxicity may be present in the City's effluent.

Human Health

The State's water quality standards now include 91 "numerical" health-based criteria that must be considered in NPDES permits. These criteria were promulgated for the State by the EPA in its National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992).

The Department has determined that the applicant's discharge is unlikely to contain chemicals regulated for human health. The wastewater discharge source is primarily domestic with some fruit packer contributions. The discharge will be re-evaluated for impacts to human health at the next permit reissuance.

Sediment Quality

The Department has promulgated aquatic sediment standards (Chapter 173-204 WAC) to protect aquatic biota and human health. These standards state that the Department may require Permittees to evaluate the potential for the discharge to cause a violation of applicable standards (WAC 173-204-400).

The Department has determined through a review of discharger characteristics and the effluent characteristics that this discharge has no reasonable potential to violate the Sediment Management Standards.

GROUND WATER QUALITY LIMITATIONS

The Department has promulgated Ground Water Quality Standards (Chapter 173-200 WAC) to protect uses of ground water. NPDES permits issued by the Department shall be conditioned in such a manner so as not to allow violations of those standards (WAC 173-200-100).

The POTW has no discharge to ground and therefore no limitations are required based on potential effects to ground water.

EFFLUENT LIMITATIONS

The effluent limitations contained in the proposed permit are as follows:

Effluent Limitations: #001				
Parameter	Units	Average Monthly	Maximum Daily	Average Weekly
BOD ₅	mg/L; lb./day	30; 24.6	N/A	45; 36.9
Fecal Coliform Bacteria	# colonies/100 ml	200	N/A	400
TSS	mg/L; lb./day	30; 24.6	N/A	45; 36.9
Parameter	Daily Discharge Value			
pH	Shall not be outside the range of 6.0 to 9.0.			

MONITORING REQUIREMENTS

Monitoring, recording, and reporting are required (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and the effluent limitations are being achieved.

Monitoring of sludge quantity and quality is necessary to determine the appropriate uses of the sludge. Sludge monitoring is required by the current state and local solid waste management program and also by EPA under 40 CFR 503.

The monitoring schedule is detailed in the proposed permit under Condition S.2. Specified monitoring frequencies take into account the quantity and variability of discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring. The required monitoring frequency is consistent with agency guidance given in the current version of Ecology's *Permit Writer's Manual* (July 1994) for Pateros POTW.

Additional monitoring is not required in order to further characterize the effluent. The Town has only one industrial user discharging to the POTW. This user is not expected to discharge any chemical or biological toxic substances at toxic levels. Historically there has never been an adverse effect caused at the POTW that was attributable to the fruit packing industrial user.

LAB ACCREDITATION

With the exception of certain parameters the permit requires all monitoring data to be prepared by a laboratory registered or accredited under the provisions of Chapter 173-50 WAC, Accreditation of Environmental Laboratories. The laboratory at this facility is not accredited for general chemistry and microbiology at this time.

OTHER PERMIT CONDITIONS

REPORTING AND RECORDKEEPING

The requirements of proposed permit Condition S3. are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 273-220-210).

PREVENTION OF FACILITY OVERLOADING

Overloading of the POTW is a violation of the terms and conditions of the proposed permit. When the facility has reached 85% of its design flow or loading capacities for three consecutive months, the proposed permit in Condition S4. will require the completion and submittal of a Plan for Maintaining Adequate Capacity (PMAC) to meet all of the effluent limitations required in the proposed permit. Condition S4. also restricts the amount of influent flow.

OPERATION AND MAINTENANCE (O&M)

The proposed permit contains Condition S5. as authorized under RCW 90.48.110, WAC 173-220-150, Chapter 173-230 WAC, and WAC 173-240-080. It is included to ensure proper operation and regular maintenance of equipment, and to ensure that adequate safeguards are taken so that constructed facilities are used to their optimum potential in terms of pollutant capture and treatment.

RESIDUAL SOLIDS HANDLING

To prevent water quality problems the Permittee is required in permit condition S7. to store and handle all residual solids (grit, screenings, scum, sludge, and other solid waste) in accordance with the requirements of RCW 90.48.080 and State Water Quality Standards.

The final use and disposal of sewage sludge from this facility is regulated by U.S. EPA under 40 CFR 503, and by Ecology under Chapter 70.95J RCW and Chapter 173-308 WAC. The disposal of other solid waste is under the jurisdiction of the Okanogan County Health Department.

PRETREATMENT

The proposed permit in Condition S6. prohibits the City from authorizing or permitting an industrial discharger to discharge certain types of waste into the POTW. The proposed permit contains three groups of prohibitions as follows:

1. General pollutants which cause pass through or interference, as defined in **Appendix B -- Glossary** of this fact sheet;

2. Certain specific types of wastes, namely those which are explosive, flammable, excessively acidic, basic, otherwise corrosive, or obstructive to the system. In addition, wastes with excessive BOD, petroleum based oils, or which result in toxic gases are also prohibited to be discharged; and
3. Certain types of discharges unless the POTW receives prior authorization from the Department, including: non-contact cooling water in significant volumes, stormwater and other direct inflow sources, and wastewaters significantly affecting system hydraulic loading, which do not require or benefit from treatment.

GENERAL CONDITIONS

General Conditions are based directly on State and federal law and regulations and have been standardized for all individual municipal NPDES permits issued by the Department.

PERMIT ISSUANCE PROCEDURES

PERMIT MODIFICATIONS

The Department may modify the proposed permit to impose numerical limitations, if necessary to meet Water Quality Standards, Sediment Quality Standards, or Ground Water Standards, based on new information obtained from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

The Department may also modify the proposed permit as a result of new or amended State or federal regulations.

RECOMMENDATION FOR PERMIT ISSUANCE

The proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to protect human health, aquatic life, and the beneficial uses of waters of the State. The Department proposes that the proposed permit be issued for five (5) years.

REFERENCES FOR TEXT AND APPENDICES

Environmental Protection Agency (EPA)

1992. National Toxics Rule. Federal Register, V. 57, No. 246, Tuesday, December 22, 1992.

1991. Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001.

- 1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington, D.C.
- 1985. Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water. EPA/600/6-85/002a.
- 1983. Water Quality Standards Handbook. USEPA Office of Water, Washington, D.C.

Metcalf and Eddy.

- 1991. Wastewater Engineering, Treatment, Disposal, and Reuse. Third Edition. Tsivoglou, E.C., and J.R. Wallace.
- 1972. Characterization of Stream Reaeration Capacity. EPA-R3-72-012. (Cited in EPA 1985 op.cit.) Washington State Department of Ecology.
- 1994. Permit Writer's Manual. Publication Number 92-109 Water Pollution Control Federation.
- 1976. Chlorination of Wastewater.

Wright, R.M., and A.J. McDonnell.

- 1979. In-stream Deoxygenation Rate Prediction. Journal Environmental Engineering Division, ASCE. 105(E2). (Cited in EPA 1985 op.cit.)

APPENDIX A -- PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to reissue a permit to the applicant listed on page 1 of this fact sheet. The proposed permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public notice of application was published on July 16, 2004 in the Wenatchee World to inform the public that an application had been submitted and to invite comment on the reissuance of this permit.

The Department published a Public Notice of Draft (PNOD) on May 20, 2004, in Quad City Herald to inform the public that a draft permit and fact sheet were available for review. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Water Quality Permit Coordinator
Department of Ecology
Central Regional Office
15 West Yakima Avenue, Suite 200
Yakima, Washington 98902

Any interested party may comment on the draft permit or request a public hearing on the draft permit within the thirty (30) day comment period to the address above. The request for a hearing shall indicate the interest of the party and the reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least thirty (30) days in advance of the hearing. All parties expressing an interest in the proposed permit will be mailed an individual notice of hearing (WAC 173-220-100).

The Department will consider all comments received within thirty (30) days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the proposed permit. The Department's response to all significant comments is available upon request and will be mailed directly to those parties expressing an interest in the proposed permit.

Further information may be obtained from the Department by telephone, (509) 457-7105, or by writing to the address listed above.

The proposed permit and this fact sheet were written by Richard Marcley.

APPENDIX B -- GLOSSARY

Acute Toxicity -- The lethal effect of a compound on an organism that occurs in a relatively short period of time, usually within forty-eight (48) to ninety-six (96) hours.

AKART -- An acronym for “all known, available, and reasonable methods of prevention, control, and treatment” and includes best management practices as may be stipulated by the Department.

Ambient Water Quality -- The existing environmental condition of the receiving water prior to receiving the discharge of an effluent, runoff and/or stormwater.

Average Monthly Discharge Limitation -- The highest allowable average of daily discharge values over a calendar month, calculated as the sum of all daily discharge values measured during a calendar month divided by the number of daily discharge values measured during that same calendar month.

Average Weekly Discharge Limitation -- The highest allowable average of daily discharge values over a calendar week, calculated as the sum of all daily discharge values measured during a calendar week divided by the number of daily discharge values measured during that same calendar week.

BOD₅ -- The Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in water sample that is degradable by bacteria. The BOD₅ analysis specifically measures the reduction of dissolved oxygen, after a five- (5) day interval. Stress caused by reduced dissolved oxygen levels in a receiving water body causes aquatic organisms to be less competitive and less able to sustain their species in their aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the Federal Clean Water Act.

Bypass -- The intentional diversion of waste streams from any portion of a POTW.

Chlorine -- Chlorine is used to disinfect wastewaters and effluents of pathogens harmful to human health. It is also extremely toxic to aquatic life and must be controlled.

Chronic Toxicity -- The effect of a pollutant, or pollutants, on an organism over a relatively long time, often one-tenth (1/10) or more of the organism's lifespan. Chronic toxicity can measure survival, reproduction, growth rates, or other parameters in order to quantify the toxic effects of a pollutant, or pollutants.

Clean Water Act (CWA) -- The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Compliance Inspection - Without Sampling -- A site visit of an industrial discharger or municipal POTW for the purpose of determining the compliance of the facility with the terms and conditions of its wastewater discharge permit, or with other applicable statutes and regulations.

Compliance Inspection - With Sampling -- A site visit of an industrial discharger or municipal POTW for the purpose of accomplishing a "Compliance Inspection - Without Sampling", as described above, with the addition of sampling and analysis for all parameters having specific limits contained in the POTW's wastewater discharge permit. The sampling results shall be used to ascertain compliance with the proposed permit limits and the applicable percent removal requirements for specific pollutants. Additional sampling may be conducted.

Composite Sample -- A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. The grab samples may either be collected on a "time-composite" (collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots) basis.

Construction Activity -- Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

"Critical" Condition -- The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a waterbody is low, thus, its ability to dilute effluent is reduced.

Daily Discharge Value -- The average measurement of a pollutant over a calendar day or any twenty-four (24) hour period that reasonably represents the calendar day for purposes of sampling. Calculated as the sum of all analysis values of a single parameter measured during a single twenty-four (24) hour period, divided by the number of analysis values measured during that same twenty-four (24) hour period.

Dilution Factor -- A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the effluent fraction e.g., a dilution factor of ten (10) means the effluent comprises ten percent (10%) by volume and the receiving water ninety percent (90%).

Engineering Report -- A document which thoroughly examines the engineering and administrative aspects of a particular POTW or discharging facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal Coliform Bacteria -- Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans, and which are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a waterbody can indicate the recent release of untreated, or inadequately treated, wastewater and/or the presence of warm-blooded animal feces.

Grab Sample -- A single sample or measurement taken at a specific time or over as short period of time as is feasible.

Industrial User -- A discharger of wastewater to the sanitary sewer which is non-domestic wastewater or is not equivalent to sanitary wastewater in character.

Industrial Wastewater -- Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term also includes contaminated storm water and leachate from solid waste facilities.

Infiltration and Inflow (I/I) -- "Infiltration" means the addition of ground water into a collection system through joints, the sewer pipe material, cracks, and other defects. "Inflow" means the addition of rainfall-caused surface water drainage from roof drains, yard drains, basement drains, street catch basins, etc., into a collection system.

Interference -- A discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

1. Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and
2. Therefore is a cause of a violation of any requirement of the POTW's permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to subtitle D of the SWDA), sludge regulations appearing in 40 CFR Part 507, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Major Facility -- A facility discharging to surface water with an EPA rating score of greater than eighty (>80) points based on factors such as: flow volume, toxic pollutant potential, and public health impact.

Maximum Daily Discharge Limitation -- The highest allowable daily discharge value of a pollutant during any calendar day or any twenty-four (24) hour period that reasonably represents the calendar day for purposes of sampling.

Method Detection Level (MDL) -- The minimum concentration of a substance that can be measured and reported with ninety-nine percent (99%) confidence that the analyte concentration is above zero (0) and is determined from analysis of a sample in a given matrix containing the analyte.

Minor Facility -- A facility discharging to surface water with an EPA rating score of less than eighty (<80) points based on factors such as: flow volume, toxic pollutant potential, and public health impact.

Mixing Zone -- A physical area of a receiving water that surrounds an effluent discharge within which the State's water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a POTW's wastewater discharge permit and follows procedures outlined in State regulations (Chapter 173-201A WAC).

National Pollutant Discharge Elimination System (NPDES) -- The NPDES (Section 402 of the Clean Water Act) is the Federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the State of Washington, have been delegated the authority to issue NPDES permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both State and Federal laws.

Pass through -- A discharge which exits the POTW into waters of the State in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation), or which is a cause of a violation of State water quality standards.

pH -- The pH of a liquid measures its acidity or alkalinity. A pH of seven (7) is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Potential Significant Industrial User (PSIU) -- A potential significant industrial user is defined as an industrial user which does not meet the definition of a Significant Industrial User (SIU), below, and which discharges wastewater meeting one or more of the following criteria:

1. Exceeds one-half percent (0.5%) of any POTW design capacity criteria and discharges less than twenty-five thousand (<25,000) gallons per day; or
2. Is a member of a group of similar industrial users which, when taken together, have the potential to cause pass-through or interference at the POTW (e.g. facilities which develop photographic film or paper, and car washes).

The Department may determine that a discharger initially classified as a PSIU should be managed as an SIU.

Quantitation Level (QL) -- A calculated value which is typically equal to five (5) times the MDL (method detection level) for a specific laboratory analysis method.

Significant Industrial User (SIU) --

1. All industrial users subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N; and
2. Any other industrial user that:
 - a. Discharges an average of twenty-five thousand (25,000) gallons per day or more of process wastewater to the POTW (excluding sanitary, noncontact cooling, and boiler blow-down wastewater);
 - b. Contributes a process wastestream that makes up to five percent (5%) or more of the average dry weather hydraulic or organic capacity of the POTW; or
 - c. Is designated as such by the Control Authority* on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement (in accordance with 40 CFR 403.8(f)(6)).

Upon finding that the industrial user meeting the criteria in paragraph 2, above, has no reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement, the Control Authority* may at any time, on its own initiative or in response to a petition received from an industrial user or POTW, and in accordance with 40 CFR 403.8(f)(6), determine that such industrial user is not an SIU.

* The term "Control Authority" refers to the Department in the case of non-delegated POTWs, or to the POTW in the case of delegated POTWs.

State Waters -- Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, wetlands, and all other surface waters and watercourses within the jurisdiction of the State.

Stormwater -- That portion of precipitation that does not naturally percolate into the ground or evaporate, but rather flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface waterbody, or a constructed infiltration facility.

Technology-based Effluent Limit -- A limit on the discharge concentration and/or mass of an effluent parameter which is based on the ability of a treatment method, or methods, to reduce that parameter.

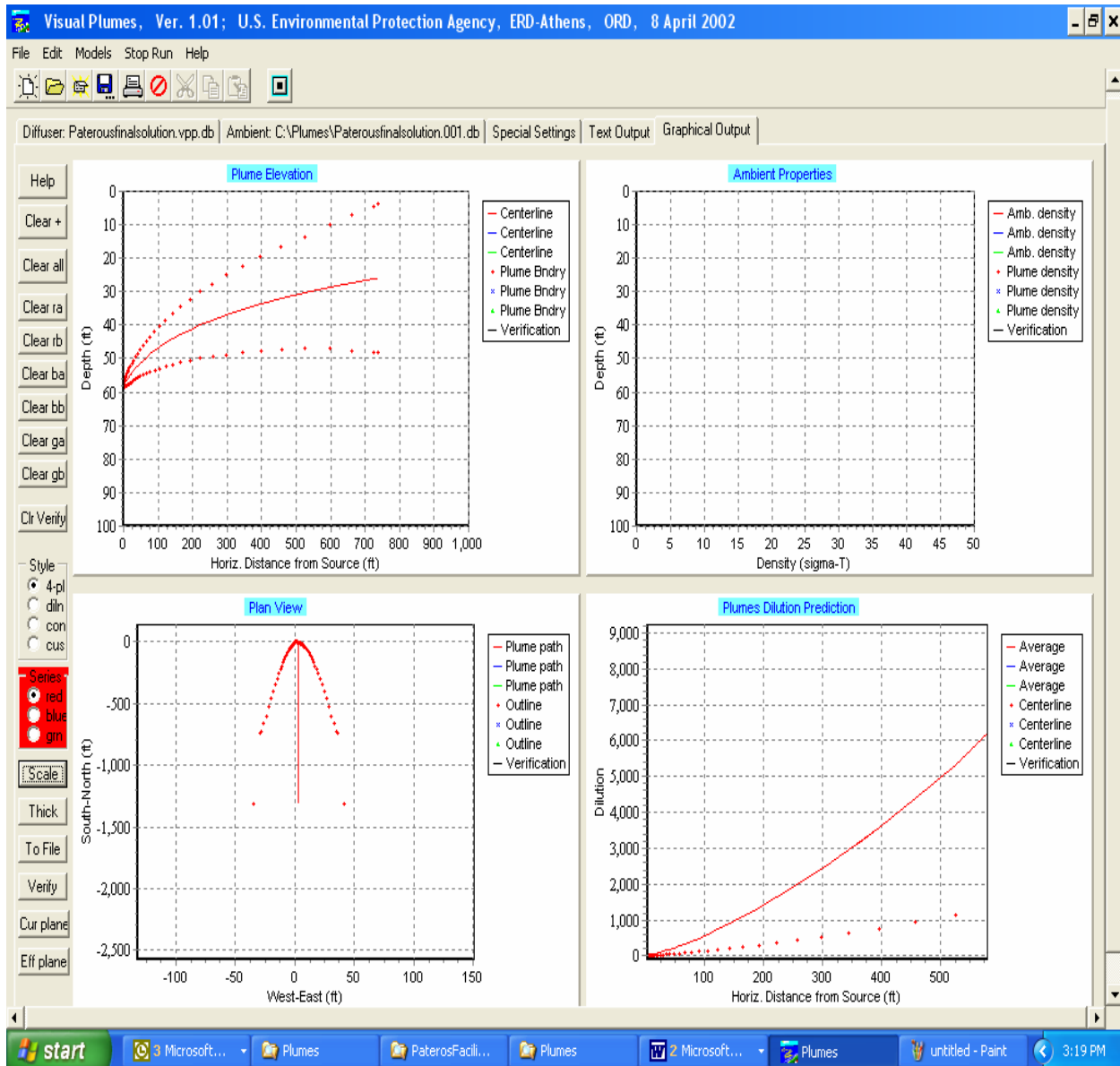
Total Suspended Solids (TSS) -- Total suspended solids are the particulate material in a wastewater or effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, TSS may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, TSS can screen out light which can promote and maintain the development of noxious conditions through oxygen depletion.

Upset -- An exceptional incident in which there is unintentional and temporary non-compliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee, but does not include non-compliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water Quality-based Effluent Limit -- A limit on the discharge concentration and/or mass of an effluent parameter that is intended to prevent that parameter from exceeding its water quality criterion after it is discharged into receiving water.

APPENDIX C -- TECHNICAL CALCULATIONS

Critical Condition 7Q10 = 41,000 cfs: Depth at outfall = 59 ft: Width of River = 1750 ft:
Recent Three Year Maximum Monthly Average Effluent Flow = 0.834 MGD: Temp = 22° C:
Port Diameter = 8" : Distance Outfall from Shore = 550 ft:



Visual Plumes, Ver. 1.01; U.S. Environmental Protection Agency, ERD-Athens, ORD, 8 April 2002

File Edit Models Stop Run Help

Diffuser: Paterousfinalsolution.vpp.db Ambient: C:\Plumes\Paterousfinalsolution.001.db Special Settings Text Output Graphical Output

Ambient Inputs

	Measurement depth or height	Near-field current speed	Near-field current dir.	Ambient salinity(‰)	Ambient temperature	Background concentration	Pollutant decay rate(%)	Far-field current speed	Far-field dir. (used to plot)	Far-field diffusion coeff
Depth or Height	depth	depth	depth	depth	depth	depth	depth	depth	depth	depth
Extrapolation (stc)	constant	constant	constant	constant	constant	constant	constant	constant	constant	constant
Extrapolation (btm)	constant	constant	constant	constant	constant	constant	constant	constant	constant	constant
Measurement unit	ft	ft/s	deg	psu	C	%	s-1	m/s	deg	m0.67/s2
	0	1.2	270	0	18	0	0	1.2	270	0.0003
	30	0.397						0.397		
	59	0.2						0.2		

UM3

Ambient file list
Filename
Paterousfinalsolution.001.c

Time-Series Files (optional)

Borrow time-series files from project: C:\Plumes\Paterousfinalsolution

Time-series filename	click for file	click for file	click for file	click for file	click for file	click for file	click for file	click for file	click for file
Time increment (hrs)									
Cycling period									
File measurement unit									

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Visual Plumes, Ver. 1.01; U.S. Environmental Protection Agency, ERD-Athens, ORD, 8 April 2002

File Edit Models Stop Run Help

Diffuser: Paterousfinalsolution.vpp.db | Ambient: C:\Plumes\Paterousfinalsolution.001.db | Special Settings | Text Output | Graphical Output

Project C:\Plumes\Paterousfinalsolution

Project "C:\Plumes\Paterousfinalsolution" memo

Ambient file list

Filename	Cases
C:\Plumes\Paterousfinalsolution.001.db	1 1

C:\Plumes\Paterousfinalsolution.001.db 1 1

After run go to tab:
☐ Diffuser
☐ Ambient
☐ Special
☒ Text
☐ Graphics

Units Conversion:
☒ Convert data
☐ Label only

Model Configuration

- ☒ Brooks far-field solution
- ☒ Graph effective dilution
- ☒ Average plume boundary
- ☐ Amb. current vector averaging
- ☐ Tidal pollution buildup
- ☐ Same-levels time-series input

Case selection:
☒ Base or selected case
☐ Sequential, all ambient list
☐ Sequential, parse ambient
☐ All combinations

Diffuser, Flow, Mixing Zone Inputs

Port diameter	n/r	Port elevation	Vertical angle	Hor angle	Num of ports	n/r	n/r	n/r	n/r	Acute mix zone	Chronic mix zone	Port depth	Effluent flow	Effluent salinity(*)	Effluent temp	Effluent conc
in	m	ft	deg	deg		m	s	s	s	ft	ft	ft	MGD	psu	C	%
8		1	0	0	1					35	359	58	0.0834	0	22	100

Parameters for selected row

Froude number	
Eff density (kg/m3)	
Port vel (m/s)	
P-dia (m)	0.2032
P-dia (in)	8.0
Case No.	1.0

Time Series-Files (optional)

	Port depth	Effluent flow	Effluent salinity(*)	Effluent temp	Effluent conc
Time-series filename	click for file	click for file	click for file	click for file	click for file
Time increment (hrs)					
Time cycling period					
Measurement unit					

Borrow time-series from project: C:\Plumes\Paterousfinalsolution

start | 3 Microsoft Out... | Plumes | PaterosFacility4-15 | Plumes | Microsoft Word | Plumes | 3:15 PM

Visual Plumes, Ver. 1.01; U.S. Environmental Protection Agency, ERD-Athens, ORD, 8 April 2002

File Edit Models Stop Run Help

Diffuser: Paterosfinalsolution.vpp.db | Ambient: C:\Plumes\Paterosfinalsolution.001.db | Special Settings | Text Output | Graphical Output

UM3 tidal pollutant buildup parameters

Channel width (m)

Additional model input

Diffuser port contraction coefficient

Light absorption coefficient

Farfield increment (m)

UM3 aspiration coefficient

Bacteria model on solar radiation input

☒ Mancini (1978) coliform model

☐ 301(h) TSD (1994) coliform (for saltwater, Eqn B-68)

☐ 301(h) TSD (1994) enterococcus (for saltwater, Eqn B-69)

PDS sfc. model heat transfer

☐ Low ☒ Medium ☐ High

Equation of State

☒ S, T ☐ p, S, T

Text output settings

Output medium

☒ Text tab (ambient filled) ☐ File (ambient filled)

☐ Text tab (ambient as is) ☐ File (ambient as is)

☐ Show changed Diffuser and Ambient tab variables only

Selection List

CL-diln

Reset Default List

Farfield Diffusivity Option

Constant Eddy Diffusivity

Selected Variables

Depth

Amb-cur

P-dia

Polutnt

Dilutn

CL-diln

x-posn

y-posn

UM3 output each ?? steps

UM3 maximum dilution reported

UM3 max vertical reversals

☒ to max rise or fall

☐ to second trap level

☐ to 2nd max rise or fall

☐ Stop on maximum dilution

UM3 text output format

☒ Standard output

☐ Brief output

Close panel

Graphics settings

Style

☒ 4-panel ☐ concentration

☐ dilution ☐ custom

Custom graph coords.

☒ Abscissa (x)

☐ Ordinate 1 (y)

☐ Ordinate 2 (y)

Custom variables

Depth

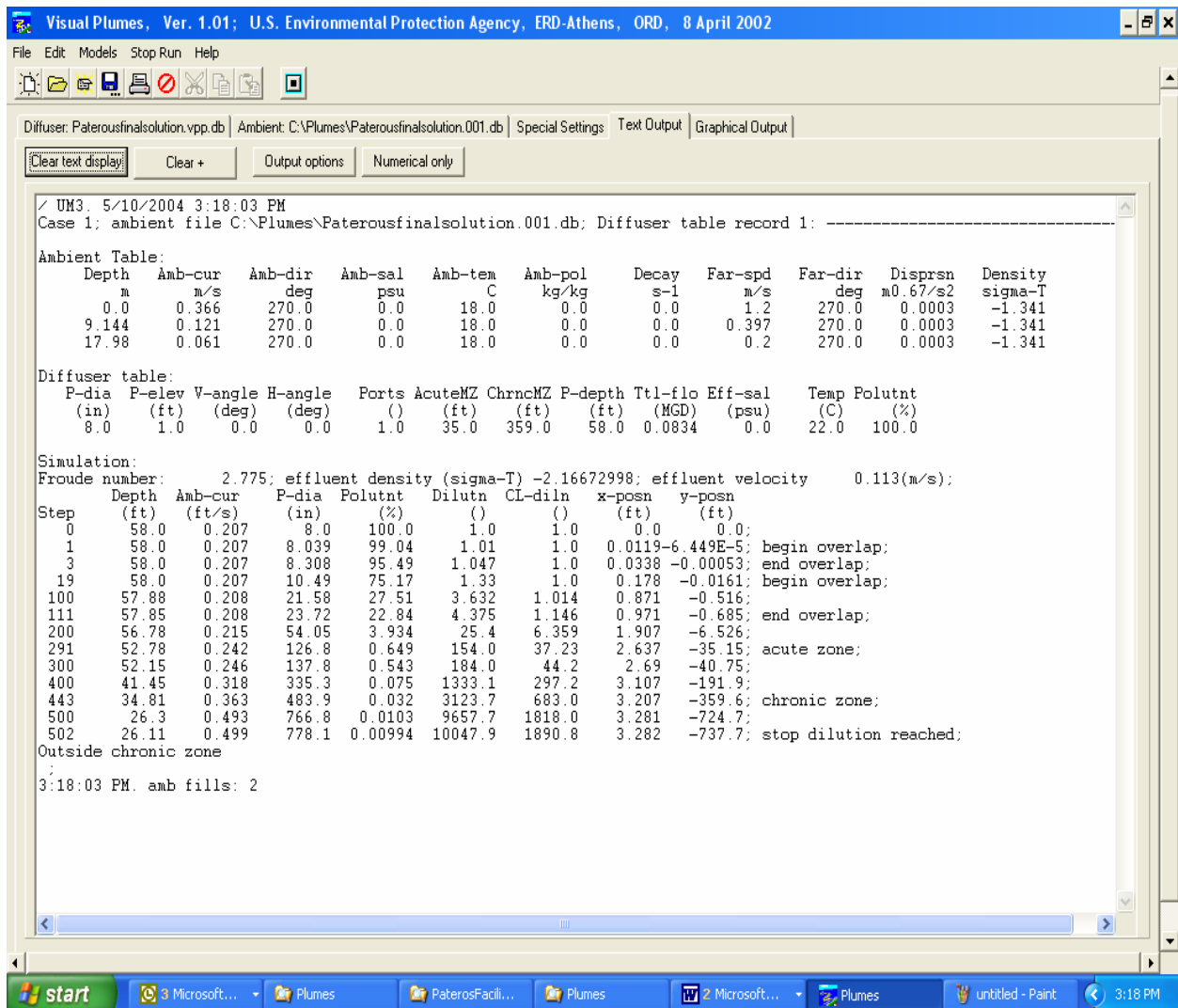
Start case for graphs

Max detailed graphs

NRFIELD/FRFIELD input variables

start

Microsoft... Plumes PaterosFacil... Plumes Microsoft... Plumes untitled - Paint 3:17 PM



APPENDIX D -- RESPONSE TO COMMENTS

No comments were received by the Department of Ecology.